(d) providing a conductive trace electrically connected with said conductive material;

(e) providing a membrane supporting said conductive trace, wherein said conductive material is located between said membrane and said substrate; and;

(f) removing said substrate from said conductive material.

3. The method of claim 2 wherein said recess is created using a tool.

4. The method of claim 3 further including a step of pressing said tool into contact with said substrate.

5. The method of claim 3 further including a step of creating a second recess with said tool.

6. The method of claim 5 further including a step of moving said tool laterally relative to said substrate to create said second recess.

7. The method of claim 3 including forming a vertical stop on said tool.

8. The method of claim 3 wherein said tool has a shaping portion used to create said first recess.

9. The method of claim 8 wherein said shaping portion has inclined sidewalls.

10. The method of claim 8 wherein said shaping portion has a beam and a bump.

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11. The method of claim 8 wherein said shaping portion has an inclined surface between a tail and a head.

12. The method of claim 8 wherein said shaping portion has a head and a tail, and said tail is thinner than said head.

13. The method of claim 2 wherein said substrate is a ductile material.

14. The method of claim 3 wherein said tool is formed from a material that is harder than said substrate.

15. The method of claim 2 further comprising a step of creating a second recess.

16. The method of claim 15 wherein said first recess is substantially similar to said second recess.

17. The method of claim 2 further comprising a step of patterning an insulative layer on said substrate.

18. The method of claim 17 wherein said insulative layer is patterned on said substrate prior to creating said first recess.

19. The method of claim 17 wherein said insulative layer defines an opening and said first recess is created at a location corresponding with said opening.

20. The method of claim 2 wherein said conductive material contains at least one of nickel and rhodium.

21. The method of claim 2 further comprising a step of forming an exterior layer of rhodium on said conductive material.

22. The method of claim 21 wherein said exterior layer of rhodium forms a v-shape.

23. The method of claim 2 wherein said step of locating conductive material within said recess comprises electroplating said conductive material onto said support.

24. The method of claim 2 wherein said conductive material is deposited uniformly.

25. The method of claim 2 further comprising a step of planarizing said conductive material after locating said conductive material in said recess.

26. The method of claim 2 further comprising a step of forming said recess so that said conductive material has a substantially flat surface inclined with respect to a supporting surface of said membrane support.

27. The method of claim 2 further comprising a step of forming said recess so that said conductive material is substantially pyramidal in shape.

28. The method of claim 2 further comprising a step of polishing said substrate prior to creating said recess.

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29. The method of claim 2 further comprising a step of forming a roughened surface on said conductive material.

30. The method of claim 2 wherein said substrate has a crystal grain and said recess has at least one substantially flat surface inclined relative to said crystal grain, said surface and said crystal grain defining an acute angle therebetween.

31. A method of creating a probe comprising:

(a) providing a substrate;

(b) overlaying a patterned layer on said substrate where said patterned layer defines a plurality of openings therein;

(c) aligning a tool with respect to at least one of said openings and creating a first set of depressions within said openings based upon the pattern of at least a portion of said openings;

(d) realigning said tool with respect to at least one of said openings and creating a second set of depressions within said openings based upon the pattern of at least a portion of said openings; and

(e) locating conductive material within a plurality of said depressions and thereafter removing said substrate from said conductive material.

32. The method of claim 31 further comprising connecting a conductive trace to said conductive material.

33. The method of claim 32 further comprising applying a membrane to support said conductive material.

34. The method of claim 33 wherein said membrane is applied after connecting said conductive trace to said conductive material.

35. The method of claim 31 wherein said depressions are created by pressing a tool into said substrate.

36. The method of claim 35 including the step of moving said tool laterally relative to said substrate to create said depressions.

37. A method of creating a probe comprising:

(a) providing a substrate;

(b) overlaying a layer on said substrate and thereafter patterning said layer to define a plurality of openings therein;

(c) creating a set of depressions within said openings after said layer is said patterned;

(d) locating conductive material within said depressions; and

(e) removing said substrate from said conductive material.

38. The method of claim 37 further comprising connecting a conductive trace to said conductive material.

39. The method of claim 38 further comprising applying a membrane to support said conductive material.

40. The method of claim 39 wherein said membrane is applied after connecting said conductive trace to said conductive material.

41. The method of claim 37 wherein said depressions are created by pressing a tool into said substrate.

42. The method of claim 41 including the step of moving said tool laterally relative to said substrate to create said depressions.

43. A method of creating a probe comprising:

(a) providing a substrate;

(b) creating a set of depressions within said substrate by pressing a tool into said substrate where the depth of said depression is controlled, at least in part, by a portion of said tool extending outwardly therefrom coming into pressing engagement with said substrate thereby inhibiting the continuing relative movement of said substrate with respect to said tool;

(c) locating conductive material within said depressions; and

(d) removing said substrate from said conductive material.

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FIG. 15

44. The method of claim 43 further comprising connecting a conductive trace to said conductive material.

45. The method of claim 44 further comprising applying a membrane to support said conductive material.

46. The method of claim 45 wherein said membrane is applied after connecting said conductive trace to said conductive material.

47. The method of claim 45 including the step of moving said tool laterally relative to said substrate to create said depressions.

48. A method of creating a probe comprising:

(a) providing a substrate;

(b) creating a set of depressions within said substrate having at least one sidewall that is independent of the crystalline structure of said substrate;

(c) locating conductive material within said depressions; and

(d) removing said substrate from said conductive material.

49. The method of claim 48 further comprising connecting a conductive trace to said conductive material.

50. The method of claim 49 further comprising applying a membrane to support said conductive material.

51. The method of claim 50 wherein said membrane is applied after connecting said conductive trace to said conductive material.

52. The method of claim 48 including the step of moving a tool laterally relative to said substrate to create said depressions.

53. A probing assembly for probing an electrical device comprising:

(a) a support;

(b) a membrane in overlying relationship to said support;

(c) a plurality of conductors supported by said membrane;

(d) a plurality of contacts supported by said membrane, each of said elongate contacts electrically connected to at least a respective one of said conductors, each of said elongate contacts tilts in response to pressing engagement with said electrical device; and

(e) said elongate contacts further characterized by:

(i) a contacting portion located to come into pressing engagement with said electrical device;

(ii) a major portion of a body extending from said contacting portion that increasingly decreases in thickness further distant from said contacting portion.

54. The probing assembly of claim 53 wherein said major portion increasingly decreases linearly.

55. The probing assembly of claim 53 wherein said contacting portion and said body are integral with each other.

56. The probing assembly of claim 55 wherein said contacting portion and said body are homogenous with each other.

57. The probing assembly of claim 53 wherein said elongate contact is substantially pyramidal.

58. The probing assembly of claim 53 wherein said contacting portion is substantially parallel with respect to said membrane and said major portion is inclined with respect to said membrane.

59. A probing assembly for probing an electrical device comprising:

(a) a support;

(b) a membrane in overlying relationship to said support;

(c) a plurality of elongate conductors supported by said membrane;

(d) a plurality of contacts supported by said membrane, each of said contacts electrically connected to at least a respective one of said conductors; and

(e) said contacts further characterized by a contacting portion located to come into pressing engagement with said electrical device where the contacting portion of each of said contacts has a substantially identical non-smooth texture.

60. The probing assembly of claim 59 wherein each of said elongate contacts tilts in response to pressing engagement with said electrical device.

61. The probing assembly of claim 59 wherein said contacting portion is substantially parallel with respect to said membrane.

62. A probing assembly for probing an electrical device comprising:

(a) a support;

(b) a membrane in overlying relationship to said support;

(c) a plurality of elongate conductors supported by said membrane;

(d) a plurality of elongate contacts supported by said membrane, each of said elongate contacts electrically connected to at least a respective one of said conductors, and

(e) said elongate contacts further characterized by having a first width proximate a contacting portion with said electrical device that is less than a second width proximate an opposing end of said elongate contact with respect to said contacting portion.

63. The assembly of claim 62 wherein each of said elongate contacts tilts in response to pressing engagement with said electrical device.

64. The assembly of claim 62 wherein each of said contacting portions are aligned in a linear arrangement, and said contacts are arranged so that said opposing end of one of said contacts is adjacent to a non-opposing end of another said contacts.

65. The assembly of claim 64 wherein each of said contacting portions are generally aligned in an arrangement along an axis, and said opposing end of one of said contacts is in an overlapping relationship to said opposing end of an adjacent one of said contacts with respect to direction perpendicular to said axis.

REMARKS

Examination and allowance are respectfully requested.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Box Fee Amendment, Commissioner for Patents, Washington, D.C. 20231.

Dated: March 22, 2001

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